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### REMARKS

With entry of the instant amendment, claims 49 – 84 are pending. Without prejudice, claims 42 - 44 directed to the non-elected claims, have been canceled, and claims 50, 69 and 71 have been amended. Claims 83 and 84 are new. Applicants reserve the right to file continuation applications on any subject matter withdrawn from consideration by the Examiner. New matter has not been introduced by the instant amendment.

New claims 83 and 84 depend from independent claims 50 and 71, respectively, and are directed to a polypeptide having 2, 5-DKG permease activity and at least 70% amino acid sequence identity to SEQ ID NO: 8. Support is found, for example at page 15 of the disclosure.

In the Office Action dated July 30, 2003, the Examiner indicated claims 49, 54 and 55 were allowed. Claims 51 - 53, 67 - 68, 72 - 73 and 77 - 79 have been objected to as being dependent upon a rejected base claim. Additionally, claims 69 and 70 have been rejected under 35 U.S.C. §112, first paragraph; claim 50 has been rejected under 35 U.S.C. §102(e) as being anticipated by Hoch et al., (A); claims 50, 56 - 66, 71, 74 - 76 and 80 - 82 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hoch et al., (A); and claim 69 has been rejected under 35 U.S.C. §102(b) as being anticipated by either Muzny et al. (V) or Mason et al., (W). Applicants respectfully traverse each of the above rejections based on the arguments and amendment provided herein.

Further, the Examiner has objected to the specification based upon informalities in the first paragraph of page 1 of the disclosure. Applicants have amended the paragraph to include the correct provisional application serial numbers at lines 3 and 5.

#### Rejection of claims 69 and 70 under 35 U.S.C. §112, first paragraph -

Claim 69 has been amended to recite that the oligonucleotide comprising at least 20 contiguous nucleotides of SEQ ID NO. 7 is used as a probe and hybridizes under stringent hybridization conditions to another nucleic acid that encodes a polypeptide having 2,5-DKG permease activity. Support for this amendment is found at pages 28 and 29 of the disclosure. Claim 70 depends from claim 69 and is directed to at least 50 contiguous nucleotides. It is submitted that the claims do comply with the enablement requirement of the first paragraph of section 112. The oligonucleotides comprise at least 20 or at least 50 nucleotides of SEQ ID NO. 7, the oligonucleotides must hybridize under stringent conditions to another sequence which

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encodes a polypeptide having 2,5 DKG permease activity. Stringent hybridization conditions are defined in the specification along with methods for determining 2,5 DKG permease activity.

Rejection of claim 50 under 35 U.S.C. §102(e) as being anticipated by Hoch et al., (A) -

Applicants have amended claim 50 to recite an isolated nucleic acid molecule encoding a polypeptide having an amino acid sequence with at least 60% sequence identity to SEQ ID NO: 8, wherein said polypeptide has 2,5-DKG permease activity. The sequence disclosed in Hoch et al. and cited by the Examiner (SEQ ID NO. 14) does not have at least 60% sequence identity to Applicants' SEQ ID NO. 8. Support for claiming at least 60% sequence identity can be found in the present disclosure at page 15. Applicants submit the amendment to the claim renders moot the rejection under 35 U.S.C §102(e).

Rejection of claims 50, 56 - 66, 71, 74 - 76 and 80 - 82 under 35 U.S.C. §103(a) as being unpatentable over Hoch et al., (A) -

As discussed above, independent claim 50 is directed to a polynucleotide encoding a polypeptide having 2,5 DKG permease activity and an amino acid sequence with at least 60% sequence identity to SEQ ID NO. 8. The Hoch et al. reference does not teach such a polypeptide, and furthermore the reference lacks any suggestion of such a polypeptide. While one skilled in the art may have been motivated to look for polynucleotides that encode a polypeptides having 2,5 DKG permease activity there is no teaching or suggestion found in the Hoch et al. reference, which suggests a polynucleotide encoding a polypeptide as claimed by Applicants.

Claims 56 - 66 depend from claim 50 and are directed to nucleic acids operably linked to promoters, vectors and transformed host cells. Applicants assert the amendment to claim 50, renders moot the present rejection under section 103 of claims 56 - 66. It is emphasized that the nucleic acid as claimed in claim 50 is not anticipated or made obvious by the Hoch et al reference and therefore the claims dependent thereon are not rendered obvious by the reference.

Independent claim 71 has been amended to recite a method of enhancing the production of 2-keto-L-gulonic acid (2-KLG) in a bacterial host comprising transforming a bacterial host with a nucleic acid which encodes a first polypeptide having 2,5-diketo-D-gluconic acid (2, 5- DKG) permease activity, said first polypeptide having at least 60% amino acid sequence identity to SEQ ID NO: 8, wherein the bacterial host is capable of expressing an enzyme that catalyzes the

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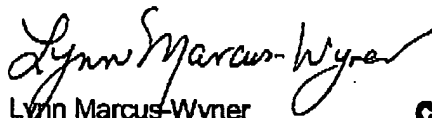
conversion of 2, 5-DKG to 2-KLG; culturing the transformed bacterial host under suitable culture conditions; and obtaining 2-KLG. As stated above, the Hoch et al. reference discloses a polypeptide (SEQ ID NO. 14) having less than 60% amino acid sequence identity to SEQ ID NO. 8 of the instant invention. While clearly one skilled in the art had motivation to enhance the production of 2-KLG, transforming a bacterial host with a nucleic acid encoding a polypeptide having 2,5-DKG permease activity and having at least 60% amino acid sequence identity to SEQ ID NO. 8 was not known or made obvious by the reference. Moreover to establish a *prima facie* case of obviousness, not only must there be some suggestion or motivation provided by the reference, there must be a reasonable expectation of success found in the reference (*In re Vaeck* 20 USPQ2d 1438 (Fed. Cir. 1991)). The sequence disclosed in Hoch et al. (SEQ ID NO. 14) is different than SEQ ID NO. 8 and further has less than 60% sequence identity. Claims 74 - 76 and 80 - 82 depend from claim 71, and it is submitted that the amendment to claim 71 also renders moot the rejection of said claims as obvious over Hoch et al.

Rejection of claim 69 under 35 U.S.C. §102(b) as being anticipated by either Muzny et al. (V) or Mason et al., (W) -

Both Muzny et al. and Mason teach a sequence with 100% identity to 20 contiguous nucleotides of SEQ ID NO. 7. However, either reference teaches the use of the polynucleotide as a probe wherein the polynucleotide hybridizes under stringent hybridization conditions to a nucleic acid that encodes a polypeptide having 2,5-diketo-D-gluconic acid (2,5-DKG) permease activity. Applicants assert the limitation to claim 69 renders the rejection moot.

Applicants believe the claims are in condition for allowance and an early allowance for claims 49 - 84 is kindly requested.

Respectfully submitted,



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